

**BEST AVAILABLE COPY****AMENDMENTS TO THE CLAIMS****Claim 1-6 (canceled)**

5      Claim 7 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a transparent substrate;
- an amorphous interface layer formed on the transparent substrate;
- a top surface of the amorphous interface layer comprising a first surface region
- 10     and a second surface region;
- a  $p^+$ -type contact layer formed on the first surface region;
- a p-type cladding layer formed on the  $p^+$ -type contact layer;
- a multiple quantum well (MQW) light-emitting layer formed on the p-type cladding layer;
- 15     an n-type cladding layer formed on the MQW light-emitting layer;
- an n-type stop layer formed on the n-type cladding layer;
- a transparent conductive layer formed on the n-type stop layer;
- a first electrode formed on the transparent conductive layer; and
- a second electrode formed on the second surface region.

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**Claim 8 (currently amended): A light emitting diode having a transparent substrate, the****light emitting diode comprising:**

- a transparent substrate comprising sapphire;
- an amorphous interface layer formed on the transparent substrate, a top surface
- 25     of the amorphous interface layer comprising a first surface region and a second surface region;
- a contact layer of  $p^+$ -type GaAs formed on the first surface region;
- a p-type cladding layer of p-type AlGaInP formed on the contact layer[[.]]; and
- a light-emitting layer of AlGaInP formed on the p-type cladding layer;

- an n-type cladding layer of n-type AlGaInP formed on the light-emitting layer;
- a stop layer of n-type AlGaAs formed on the n-type cladding layer;
- an indium tin oxide (ITO) transparent conductive layer formed on the stop layer[[.]];
  - 5 a first electrode formed on the ITO transparent conductive layer[[.]]; and
  - a second electrode formed on the second surface region.

Claim 9 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- 10 an ohmic contact electrode;
- a p-type transparent substrate formed on the ohmic contact electrode;
- a first p<sup>+</sup>-type contact layer formed on the transparent substrate;
- an amorphous interface layer formed on the first p<sup>+</sup>-type contact layer;
- a second p<sup>+</sup>-type contact layer formed on the amorphous interface layer;
- 15 a p-type cladding layer formed on the second p<sup>+</sup>-type contact layer;
- a light-emitting layer formed on the p-type cladding layer;
- an n-type cladding layer formed on the light-emitting layer;
- an n-type stop layer formed on the n-type cladding layer;
- a transparent conductive layer formed on the n-type stop layer; and
- 20 a first electrode formed on the transparent conductive layer.

Claim 10 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- an ohmic contact electrode;
- 25 a p-type GaP transparent substrate formed on the ohmic contact electrode;
- a first p<sup>+</sup>-type contact layer of p<sup>+</sup>-type GaAs formed on the p-type GaP transparent substrate;
- an indium tin oxide amorphous interface layer formed on the first p<sup>+</sup>-type contact layer;

- a second  $p^+$ -type contact layer of  $p^+$ -type GaAs formed on the indium tin oxide amorphous interface layer;
- a p-type cladding layer of a p-type AlGaInP formed on the second  $p^+$ -type contact layer;
- 5 a multiple quantum well light-emitting layer of AlGaInP formed on the p-type cladding layer;
- an n-type cladding layer of n-type AlGaInP formed on the light-emitting layer;
- a stop layer of n-type AlGaAs formed on the n-type cladding layer;
- 10 an indium tin oxide (ITO) transparent conductive layer formed on the stop layer;
- a first electrode formed on the ITO transparent conductive layer.

Claim 11 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- 15 an n-type transparent substrate formed on the first electrode;
- an amorphous interface layer formed on the n-type transparent substrate;
- an n-type contact layer formed on the amorphous interface layer;
- an n-type cladding layer formed on the n-type contact layer;
- a light-emitting layer formed on the n-type cladding layer;
- 20 a p-type cladding layer formed on the light-emitting layer;
- a p-type buffer layer formed on the p-type cladding layer;
- a  $p^+$ -type contact layer formed on the p-type buffer layer;
- a transparent conductive layer formed on the  $p^+$ -type contact layer; and
- 25 a second electrode formed on the transparent conductive layer.

Claim 12 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- a transparent substrate of n-type GaP formed on the first electrode;

an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate of n-type GaP;

5 a contact layer of n-type GaP formed on the ITO amorphous interface layer;

a cladding layer of n-type AlGaInP formed on the contact layer of n-type GaP;

10 a multiple quantum well (MQW) light-emitting layer of AlGaInP formed on the cladding layer of n-type AlGaInP;

a cladding layer of p-type AlGaInP formed on the MQW light-emitting layer of AlGaInP;

15 a buffer layer of p-type AlGaAs formed on the cladding layer of p-type AlGaInP;

a contact layer of p<sup>+</sup>-type GaAs formed on the buffer layer of p-type AlGaAs;

20 an indium tin oxide (ITO) transparent conductive layer formed on the contact layer of p<sup>+</sup>-type GaAs; and

a second electrode formed on the ITO transparent conductive layer.

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Claim 13 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

20 a transparent substrate;

an amorphous interface layer formed on the transparent substrate, a top surface of the amorphous interface layer comprising a first surface region and a second surface region;

25 an n<sup>+</sup>-type reverse-tunneling contact layer formed on the first surface region;

a p-type cladding layer of formed on the n<sup>+</sup>-type reverse-tunneling contact layer;

a light-emitting layer formed on the p-type cladding layer;

an n-type cladding layer formed on the light-emitting layer;

30 a first contact electrode formed on the n-type cladding layer; and

a second electrode formed on the second surface region.

Claim 14 (original): A light emitting diode having a transparent substrate, the light

emitting diode comprising:

- a transparent substrate comprising glass;
- an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate, a top surface of the ITO amorphous interface layer comprising a 5. first surface region and a second surface region;
- a reverse-tunneling contact layer of n<sup>+</sup>-type InGaN formed on the first surface region;
- a cladding layer of a p-type GaN formed on the reverse-tunneling contact layer of n<sup>+</sup>-type InGaN;
- 10 a multiple quantum well (MQW) light-emitting layer of InGaN formed on the cladding layer of a p-type GaN;
- a cladding layer of n-type GaN formed on the MQW light-emitting layer of InGaN;
- 15 a first contact electrode formed on the cladding layer of n-type GaN;
- a second electrode formed on the second surface region.

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